

U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Centrocercus minimus*

COMMON NAME: Gunnison sage-grouse

LEAD REGION: Region 6

INFORMATION CURRENT AS OF: July 1, 2004

STATUS/ACTION:

Initial 12-month Petition Finding: not warranted
 warranted
 warranted but precluded (also complete (c) and (d)
in section on petitioned candidate species- why action is
precluded)

Species assessment - determined species did not meet the definition of endangered or
threatened under the Act and, therefore, was not elevated to Candidate status

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: January 26, 2000

90-day positive - FR date:

12-month warranted but precluded - FR date:

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP:

New LP:

Latest Date species became a Candidate: January 18, 2000

Candidate removal: Former LP:

A - Taxon is more abundant or widespread than previously believed or not subject
to the degree of threats sufficient to warrant issuance of a proposed listing or
continuance of candidate status.

F - Range is no longer a U.S. territory.

I - Insufficient information exists on biological vulnerability and threats to support
listing.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Birds, *Phasianidae*

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Colorado,
Kansas, Oklahoma, New Mexico, Arizona, Utah

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Colorado, Utah

LEAD REGION CONTACT: Chuck Davis, (303) 236-4253

LEAD FIELD OFFICE CONTACT: Terry Ireland, (970) 243-2778, *16

BIOLOGICAL INFORMATION:

Species Description

North America's largest grouse is the sage-grouse, a species first described by Lewis and Clark in 1805 (Schroeder et al. 1999). Sage-grouse are charismatic birds known for their elaborate mating ritual where males congregate and 'dance' to attract a mate on a specific strutting ground called a lek. Sage-grouse species in North America were once abundant and widespread but have declined throughout their range (Schroeder et al. 1999, 2004).

Sage-grouse are most easily identified by their large size, dark brown color, distinctive black bellies, long, pointed tails and association with sagebrush habitats. Both sexes have yellow-green eye combs, which are less prominent in females. During the breeding season males have conspicuous filoplumes (specialized feathers on the neck), a black bib on a white upper breast and yellow-green air sacs on the chest.

Taxonomy

In 1977, Dr. Clait Braun, formerly with the Colorado Division of Wildlife (CDOW), noticed that sage-grouse (*Centrocercus sp.*) wings collected in the Gunnison Basin of southwestern Colorado were smaller than sage-grouse wings collected in northern Colorado. Over the two decades since then, Dr. Braun and others studied the morphological, behavioral, and genetic differences between the sage-grouse. The differences were great enough that the American Ornithologists' Union determined that there are two distinct species of sage-grouse--the greater sage-grouse (*Centrocercus urophasianus*) and the Gunnison sage-grouse (*Centrocercus minimus*) (American Ornithologists' Union 2000). Gunnison sage-grouse are significantly smaller than greater sage-grouse in size of culmen, carpal, and tarsus, and they weigh at least 400 grams less (Hupp and Braun 1991, Schroeder et al. 1999). There also are distinctive plumage differences, with the Gunnison sage-grouse male having more elaborate filoplumes and distinct, broad white barring on the tail feathers (Young et al. 2000). Geographic isolation, distinct genetic differences (Quinn et al. 1997; Kahn et al. 1999; Oyler-McCance et al. 1999) and behavioral differences in strutting display also separate these species (Young 1994; Braun and Young 1995; Schroeder et al. 1999; Young et al. 2000).

Habitat

The Gunnison sage-grouse uses a variety of habitats throughout the year but the primary component necessary is sagebrush (*Artemisia spp.*) (Braun 1995). The most important sagebrushes are subspecies of big sagebrush (*A. tridentata*). Sagebrush is used for hiding and thermal cover as well as a major source of food in the winter (Hupp and Braun 1989). From mid-March to early June males will display on leks (strutting grounds) that are open areas with good visibility (for predator detection) and acoustics (for transmission of male display sounds). After mating, females will select nest sites, typically in relatively tall and dense stands of sagebrush from 183 meters (200 yards) to 8 kilometers (5 miles) away from the leks. Nest sites selected have residual grass and forbs that provide additional hiding cover. Hens with chicks remain in sagebrush uplands if hiding cover is adequate and if food consisting of succulent forbs and insects are available. As chicks mature and vegetation in the uplands desiccates, hens will move their broods to wet meadow areas that retain succulent forbs and insects through the summer (Klebenow 1969, Wallestad 1971). Preferred wet meadow areas also contain tall grasses for hiding and at least 165-yard wide (150-meter) sagebrush stands (Dunn and Braun 1986) along the periphery for hiding and foraging areas. Unsuccessful hens and males follow the same pattern but are less reliant on wet meadows. After significant rainfall events (greater than 0.5 centimeter (0.2 inch)) hens with broods will often use upland areas that have responded to the rain with additional succulent plant growth. From mid-September into November all sage-grouse will use upland areas with 20 percent or greater sagebrush cover and some green forbs. As winter progresses and snow cover is extensive (greater than 80 percent) and deep (greater than 30 centimeters (12 inches)), sage-grouse forage in tall sagebrush (greater than 41 centimeters (16 inches) in valleys and lower flat areas (Hupp and Braun 1989) and roost in shorter sagebrush along ridge tops. Roosting and foraging is typically restricted to south or west facing slopes where snow is often shallower and less extensive (Hupp and Braun 1989). Small foraging areas that have 30 to 40 percent big sagebrush canopy cover also are important.

Historical and Current Range/Distribution

Through the study of museum specimens or written accounts, Braun (1995) determined that the Gunnison sage-grouse's historic range occurred in southwestern Colorado, southwestern Kansas, northwestern Oklahoma, northern New Mexico, northeastern Arizona, southeastern Utah, and possibly southwestern Kansas and northwestern Oklahoma.

Currently, there are seven populations in Colorado and one population in Utah. The seven population areas in Colorado include the Cerro Summit/Cimarron/Sims Mesa population south and southeast of Montrose, the Crawford Area population south of Crawford and Hotchkiss, the Dove Creek population north and west of Dove Creek, the Gunnison Basin population around the town of Gunnison, the Pinon Mesa population south of Grand Junction, the Poncha Pass population north of Villa Grove, and the San Miguel Basin population near Norwood. The San Juan County, Utah, population occurs east of Monticello. Most populations are small with the Gunnison Basin, Colorado, population being the only relatively large Gunnison sage-grouse population.

Approximately 348,000 hectares (853,000 acres) overall are currently occupied by Gunnison sage-grouse in Colorado and about 29,000 hectares (71,000 acres) are occupied in Utah for a total of about 377,000 hectares (924,000 acres) rangewide. The Gunnison Basin population currently contains approximately 242,000 hectares (593,000 acres) or up to 64 percent of the current species' range versus the Poncha Pass population that contains about 8,094 hectares (20,000 acres) or 2 percent of the range.

Population Estimates/Status

Lek counts have predominantly been the historical means by which sage-grouse population estimates have been made and are still the best and most cost-effective population estimator. Lek counts entail counting the number of males because they are very visible while displaying on the leks; while females are more cryptic. The number of females is approximately two times greater than the number of males. Although recent Gunnison sage-grouse data supports a ratio of about two females per male, other factors involved in a population estimation formula suggest the total population is about three times the number of males counted (CDOW, unpubl. lit. 2004). The number of males counted and the total population estimate are provided below. No information on the number of active or inactive leks in a population was available for 2004 as of the writing of this form, but the number of leks is reported for 2003.

The Cerro Summit/Cimarron/Sims Mesa population is divided into two sub-populations--the Cerro Summit/Cimarron sub-population and the Sims Mesa sub-population. One male was found at the Sims Mesa lek in the spring of 2000 prompting the transplant of six birds from the Gunnison Basin population that same spring. Eight males were counted on leks in the entire population in 2004 for a total spring population estimate of 24 sage-grouse (CDOW, unpubl. lit. 2004). Two of the 4 known lek sites were active in 2003 with 6 males for a total spring population estimate of 18 (CDOW, unpubl. lit. 2004). The number of males counted the last 2 years is about the same as previous years back through 2000.

Twenty-six males were counted on leks in the Crawford Area population in 2004 for a total spring population estimate of 78 sage-grouse (CDOW, unpubl. lit. 2004). In 2003, the Crawford Area population had 4 active leks with a total of 24 males counted, representing a spring population estimate of 72 (CDOW, unpubl. lit. 2004). The number of males counted the last 2 years was down by approximately 50 percent from 1999 counts.

Two males were counted on leks in the Dove Creek population in 2004 for a total spring population estimate of six sage-grouse (CDOW, unpubl. lit. 2004). Six active or inactive leks were mapped in previous years in the Dove Creek population with one smaller satellite lek. In 2003, 4 active leks with 8 males were counted representing a total spring population of 24 (CDOW, unpubl. lit. 2004). The decrease in the number of males counted in 2003 continues a precipitous decline observed since 1999.

In 2004, 498 males were counted on leks in the Gunnison Basin population, for a total spring population estimate of 1,494 sage-grouse (CDOW, unpubl. lit. 2004). In 2003, the Gunnison Basin had 40 active leks, 16 inactive leks, 19 leks of unknown status, and 2 historic leks. On the 40 active leks, 500 males were counted, representing a total spring population of

1,500 sage-grouse (CDOW, unpubl. lit. 2004). Although the number of males counted remained the same between 2003 and 2004, these counts were down 20 to 33 percent from counts since 1999.

Twenty-nine males were counted on leks in the Pinon Mesa population in 2004 for a total spring population estimate of 87 sage-grouse (CDOW, unpubl. lit. 2004). In 2003, Pinon Mesa had 4 active leks with 23 males counted representing a total spring population estimate of 69 (CDOW, unpubl. lit. 2004). The number of males counted in 2004 is about average from counts back through 2000.

In 1999, the Poncha Pass population only had one male and five females in it. Consequently, Poncha Pass received 24 Gunnison sage-grouse from the Gunnison Basin population in the spring of 2000, 20 sage-grouse in spring 2001, and 7 sage-grouse in fall 2002. In 2003, 7 males were counted on the lek for a total spring population estimate of 21 (CDOW, unpubl. lit. 2004). Eight males were counted on the lek in the Poncha Pass population in 2004 for a total spring population estimate of 24 (CDOW, unpubl. lit. 2004).

Thirty-one males were counted on leks in the San Juan County, Utah, population in 2004 for a total spring population estimate of 93 sage-grouse (Utah Division of Wildlife Resources (UDWR), unpubl. lit. 2004). In the San Juan County, Utah, population in 2003, 30 males were counted on 4 leks representing a total spring population of 90 (CDOW, unpubl. lit. 2004). The lek counts the last 2 years are approximately 30 percent lower than counts in 1999 and 2000.

The San Miguel Basin population is spread out over several areas and in 2003 included three known and active lek sites in the Beaver Creek sub-population, three known and active lek sites in the Dry Creek Basin sub-population, one known active and one historic lek site in the Gurley Reservoir sub-population, one known and active lek site in the Iron Springs sub-population, and two known and active leks in the Miramonte sub-population. For all leks in 2004, the number of males in the San Miguel Basin population was 50 representing a total spring population of 150 sage-grouse (CDOW, unpubl. lit. 2004). For all leks in 2003, the number of males counted was 51, representing a total spring population of 153 (CDOW, unpubl. lit. 2004). Although the number of males counted remained even from 2003 to 2004, the count declined 33 to 40 percent since 2001 and 2002.

Overall, the 2004 population remained essentially the same as 2003, with only three more males counted. In 2003, there was a rangewide population decrease of 22 percent from 2002 and a 31 percent decrease from 2001. The stable population number in 2004 was encouraging as further declines were expected from impacts of the 2002 drought; however, population numbers are still very low, especially outside of the Gunnison Basin population.

Long-term trends since at least the 1970s have shown steady declines in the number of males per lek rangewide. The only long-term data set is in the Gunnison Basin, which typically had at least 50 males per lek in the 1950s and 1960s and up to 120 in 1953 (Fish and Wildlife Service (FWS), unpubl. data 2002). Starting in the 1970s there has been a gradual decline, with only about 15 males per lek in the last couple of years. The highest number of males in a lek in the

Gunnison Basin in 2003 was 35; however, the majority of leks had far fewer males than this. The number of males per lek in the Gunnison Basin declined to 12.5 per lek in 2003 from 15.4 males per lek in 2002.

THREATS:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range.

The range of the Gunnison sage-grouse has been reduced to less than 25 percent of its historic range (Braun 1995, Schroeder et al. 2004). Size of the range and quality of its habitat have been reduced by direct habitat loss, fragmentation, and degradation from building development, road and utility corridors, fences, energy development, conversion of native habitat to hay or other crop fields, alteration or destruction of wetland and riparian areas, drought, inappropriate livestock management, competition for winter range by big game, and creation of large reservoirs.

Building and town development has caused direct loss and fragmentation of habitat as well as indirect losses through degradation of surrounding habitat by human activities. Land subdivision was identified as a major threat to the Gunnison Basin population (CDOW, Habitat Section, unpubl. lit. 2002). The human population in Gunnison County was estimated to be 13,967 in 2000 and was projected to be 14,040 in 2004, a 0.5 percent increase. Human population in Gunnison County is expected to grow 7.2 percent by 2010 and 33.6 percent by 2025 from the 2000 census level (State of Colorado, Division of Local Affairs, Demography Section, 2004). Whether homes for the additional people will be placed in sage-grouse habitat is unknown but private land is scattered throughout Gunnison Basin. There are no population growth estimates for the portion of Saguache County that constitutes approximately 25 percent of the sage-grouse range in the southeastern portion of the Gunnison Basin, but growth projections for Saguache County overall are 18.7 percent by 2010 and 39.3 percent by 2025 from the 2000 census level. There was projected to be 6,412 people in Saguache County in 2004, an increase of 7.7 percent from the 2000 population estimate of 5,954 (State of Colorado, Division of Local Affairs, Demography Section, 2004). However, there is likely only between 100 and 500 people in the Gunnison Basin portion of Saguache County.

The Cerro Summit/Cimarron sub-population had parcels of land exchange hands frequently in 2002 but this did not pose a threat, as little development occurred and most parcels were still over 200 acres (CDOW, unpubl. lit. 2002). The rural character of the area may preclude major subdivision. Potential development in the Sims Mesa sub-population was described as the most obvious threat to the birds in that area (CDOW, unpubl. lit. 2002). This sub-population has a large percentage of private land in the middle of its range and possible development in the near future poses a threat (CDOW, unpubl. lit. 2002). Subdivision activity was reported to continue

moving south and east of Montrose (towards the Sims Mesa sub-population), but no major new impacts occurred in occupied sage-grouse range in either sub-population of the Cerro Summit/Cimarron/Sims Mesa population (CDOW, unpubl. lit. 2004).

The historic range of the sage-grouse in the Crawford Area population has had minor impacts from housing development and the current range also had a minor threat of development impacts (CDOW, unpubl. lit. 2002). No new subdivisions were proposed for the Crawford area in 2003 but additional land is for sale that has the potential to be developed in the future (CDOW, unpubl. lit. 2004).

A subdivision in Dove Creek is a significant threat to that population (CDOW, unpubl. lit. 2002). The 3,000-acre subdivision lies in the core of the sage-grouse range north of Dove Creek. In 2002, it only had seven homes due to lack of utilities, but if utilities become available development would undoubtedly increase. A low level of rural development was reported to have continued in the Dove Creek population in 2003 (CDOW, unpubl. lit. 2004).

The Ohio Creek drainage area in the Gunnison Basin contains a lot of private land and has high potential for development; however, a 4,700-acre conservation easement was secured in 2003 on the Ochs Ranch (CDOW, unpubl. lit. 2004). Other areas in the Gunnison Basin also have quite a bit of private land but some areas have already been placed under conservation easements. Conservation easements with only an "Open Space" designation may provide some benefit to the sage-grouse if the land is in suitable condition. There was no new development in either 2002 or 2003 in sage-grouse habitat in Gunnison County (Gunnison County, unpubl. lit. 2003, CDOW, unpubl. lit. 2004). Impending development of 35+-acre lots on the Elk and Horse River Ranch may impact some sage-grouse habitat, but the owner(s) has expressed willingness to conserve some of the habitat for sage-grouse.

Building of subdivisions is an existing and long-term potential threat within the current range of the Pinon Mesa population (CDOW, unpubl. lit. 2002). Development and other land uses around the Glade Park area of the Pinon Mesa population may preclude re-establishment of the sage-grouse there. New homes were built or are under construction in this area on previously subdivided 35- to 40-acre parcels (CDOW, unpubl. lit. 2004).

The Poncha Pass population has had minor impacts to its historic range by housing development. With its scenic value and ease of access, the potential for future home site development is great. Many parcels of land are currently for sale but sales have been and remain slow (CDOW, unpubl. lit., 2002, CDOW unpubl. lit. 2004).

Housing development in the San Juan County, Utah, population is not a serious threat and most likely will not be in the foreseeable future (Laura Romin, FWS, pers. comm. 2003).

Residential development was identified as the most pressing threat to the Iron Springs sub-population in the San Miguel Basin population in 2002 (CDOW, unpubl. lit. 2002) and 2003, but currently new construction is not directly impacting sage-grouse habitat (CDOW, unpubl. lit. 2004). Such development has occurred in forested areas but sagebrush habitat has been parceled for development. The Gurley Reservoir sub-population has potential for development but the parcels were not selling quickly (CDOW, unpubl. lit. 2002). The Dry Creek Basin sub-population of the San Miguel Basin population has little expected threat from

development (CDOW, unpubl. lit. 2002). The Miramonte Reservoir sub-population has a long-term threat of summer and/or residential home development. Currently, there are no homes being developed in sagebrush habitat (Greager Flats) and the highest potential for development is at the edge of Greager Flats in the trees (CDOW, unpubl. lit. 2002).

Roads, utility corridors, and fences also have caused direct loss and fragmentation of habitats in all the populations. Gunnison sage-grouse have been known to get hit on roads and fly into fences and power lines resulting in death or injury (Clait Braun, CDOW, pers. comm. 1999; CDOW, unpubl. lit. 2004). Greater sage-grouse in Utah were observed flying into telephone lines as early as 1938 (Borell 1939). Energy development such as gas and oil wells, (San Miguel Basin and Dove Creek population), gas pipelines (San Miguel and Dove Creek populations), uranium mill tailings placement (Gunnison Basin population), and coal mines (San Miguel Basin population) have all caused destruction and fragmentation of current or historical sage-grouse habitat.

All of the Sims Mesa sub-population (of the Cerro Cimarron/Sims Mesa population) is in an area of high potential for oil and gas development (Bureau of Land Management (BLM) 1999). The Crawford Area population is in a high to medium potential for oil and gas development (BLM 1999). The entire Dove Creek population and San Miguel Basin population also are in areas of high potential for oil and gas development (BLM 1999). It appears that the entire current range of the San Juan County, Utah, population also is in an area of high potential (BLM, unpubl. lit. 2004). Although other populations either have low to no potential (BLM 1999), low potential does not exclude areas from exploration and production facilities. Ten gas wells were placed along the edge of sagebrush habitat in the Dry Creek Basin sub-population of the San Miguel Basin population in 2003 (CDOW, unpubl. lit. 2004). An additional 30 to 50 wells are proposed in this area in the next 10 years; many of which will impact sagebrush habitat. No recent sage-grouse activity has been noted in the proposed development areas (CDOW, unpubl. lit. 2004), but continued loss of habitat (reducing chance of expansion into historical habitat) is of concern.

Large reservoirs such as Blue Mesa Reservoir in the Gunnison Basin population and Miramonte Reservoir in the San Miguel Basin population have flooded habitat for the sage-grouse. Blue Mesa Dam was completed in October 1965 and the reservoir was considered full in June 1969. Miramonte Dam and Reservoir were built and filled in the early to mid 1970s. Conversion of native habitat to hay or other crop fields has impacted all areas of the grouse's range. Though some crops such as alfalfa and young bean sprouts are eaten or used for cover by sage-grouse (Clait Braun, CDOW, pers. comm. 1998), crop monocultures generally do not provide adequate food or cover. Alteration or destruction of wetland and riparian areas also has occurred from

various activities, reducing brood rearing areas in all populations. Livestock grazing at inappropriate levels has resulted in lack of cover and forage over all areas and the areas may still suffer from degradation of soil and water conditions.

In the area of the largest population, the Gunnison Basin, the BLM manages approximately

54 percent of the area identified as overall sage-grouse range. In 2002, it was estimated that 50 percent of the Wyoming big sagebrush/Indian ricegrass ecological series, which account for a significant portion of the nesting/early brood rearing habitat on the BLM lands, did not meet the desired condition for nesting/early brood rearing as described in the Gunnison Basin Gunnison Sage-grouse Conservation Plan (BLM unpubl. lit. 2004). Additionally, of the 80,000 acres of nesting/early brood rearing habitat monitored in the Gunnison Basin in 2003, 25 percent did not meet short-term habitat objectives (BLM unpubl. lit. 2004). The condition of nesting/early brood rearing and brood rearing habitat worsened as a result of the 2002 drought. In 2003, observations in the Gunnison Basin revealed reduced plant productivity, cover, diversity and structure. Many herbaceous plants, used for nesting/early brood rearing, did not recover from the drought. The ecological status for at least 50 percent of the 360 miles of lotic riparian areas (excludes lentic seeps and springs not connected to streams), which are important for brood rearing, did not meet the long-term objectives for desired habitat conditions stated in the Gunnison Basin Sage-grouse Conservation Plan and 15 percent (of the 70 miles monitored) did not meet short-term stubble height objectives. However, the 85 percent that did meet short-term stubble height objectives in 2003 was likely as a result of reduced grazing and resiliency of riparian areas due to availability of water (BLM unpubl. lit. 2004).

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes.

The sage-grouse has not been overutilized for commercial, scientific, or educational purposes. Return of sage-grouse to leks where they had previously been captured during past studies using banding and radio marking, indicate that these studies did not affect them (Dr. Clait Braun, CDOW, pers. comm. 1997). Few direct mortalities have occurred in recent research and it does not appear that research is having any negative impacts on the sage-grouse (CDOW, unpubl. lit. 2004). However, extensive capture and radio-marking of sage-grouse, especially on small populations during spring mating season, may have an impact on the populations by disrupting mating activities.

Some of the smaller populations may have been overutilized for recreational purposes by legal and illegal hunting. The Gunnison Basin population had a hunting season through 1999 but none of the other populations have been included in a hunting season for many years. It is debatable whether or not hunting impacted the Gunnison Basin population. It is unlikely that populations including the Gunnison Basin will have a hunting season on them in the foreseeable future. With increased awareness of the plight of the sage-grouse by the public and increased attention by State wildlife law enforcement personnel, it is believed that little illegal hunting currently occurs and may be limited to incidental shootings.

The Gunnison sage-grouse is a newly designated species which prompts bird watchers to view the sage-grouse for their “life lists” and may lead to disturbance in commonly known lek sites or lek sites that become known in the future. There was some concern over disturbance by lek viewing in the Gunnison Basin and Crawford Area population (Doug Homan, CDOW, pers. comm. 2002). However, lek viewing impacts appeared to be negligible in the Crawford Area in 2003 (CDOW, unpubl. lit. 2004). In 2002, Sisk-a-dee, a non-profit conservation group, attempted to minimize and document potential impacts of CDOW’s Watchable Wildlife Site at the Waunita lek site east of Gunnison (Sisk-a-dee, unpubl. lit. 2003). Volunteers informed viewers of lek viewing protocols and it was reported that 88 percent of viewers complied with the viewing protocols. Sage-grouse flushes attributable to humans only occurred 2 of 34 days. Sage-grouse lek counts at the Waunita lek site do not appear to be impacted by viewing activities when comparing Waunita lek counts from year to year and when comparing lek counts at other leks in the Gunnison Basin (CDOW, unpubl. data 2004). A recent advertisement placed in a local Gunnison County newspaper in 2003 requested private land access for viewing and inquired about additional viewing locations. Potentially extensive and unregulated viewing activities still are cause for concern.

C. Disease or Predation.

No disease problems have been detected, but it is possible that nonnative birds, primarily pheasants and chukars, will transmit diseases such as blackhead (Dr. Clait Braun, CDOW, pers. comm. 1999). Predation has been observed by coyotes (*Canis latrans*), bobcats (*Felis rufus*), ground squirrels (*Spermophilus* spp.), weasels (*Mustela* spp.), skunks (*Mephitis mephitis*), badgers (*Taxidea taxus*), golden eagles (*Aquila chrysaetos*), goshawks (*Accipiter gentilis*), peregrine falcons (*Falco peregrinus*), and ravens (*Corvus corax*) on nests, juveniles, or adults. Structures such as fences, buildings, and utility poles provide hunting perches for raptors. If these structures are placed near lek sites they can be detrimental due to exposure of sage-grouse on the leks.

West Nile Virus has not been detected in Gunnison sage-grouse, but a sick golden eagle found several miles southeast of Gunnison in fall 2003 tested positive for West Nile Virus (CDOW, unpubl. lit. 2004). West Nile Virus was detected in all counties in Colorado except one (San Miguel) in 2003. The virus was not reported in San Juan County, Utah, in 2003 (CDOW, unpubl. lit. 2004). Based on detection of the virus in nearly all counties within the range of the Gunnison sage-grouse, and documented greater sage-grouse mortality from West Nile Virus in Wyoming and other parts of their range (CDOW, unpubl. lit. 2004), an indeterminable level of impact to Gunnison sage-grouse is expected in 2004. West Nile Virus has the potential to negatively influence the status of the species rangewide due to the small sizes of most Gunnison sage-grouse populations.

D. The Inadequacy of Existing Regulatory Mechanisms.

The Gunnison sage-grouse is designated a “sensitive species” in Colorado and Utah. The CDOW and UDWR have authority for setting hunting seasons and possession limits and for enforcement against poaching and harassment. However, the State wildlife agencies do not have authority for protecting against habitat loss. Furthermore, Federal land management agencies do not have authority to protect against habitat loss on private land.

Gunnison County has the bulk of the remaining Gunnison sage-grouse population. The Board of County Commissioners of Gunnison County, Colorado, has authority to protect and promote the health, welfare and safety of the people of Gunnison County and the authority to regulate land use, land planning and quality and protection of the environment in Gunnison County. The County has duly adopted regulations to exercise such authorities including the review, approval or denial of proposed activities and uses of land and natural resources. In 2001, Gunnison County passed Land Use Resolutions to include conservation for the sage-grouse. These resolutions can be used to regulate private land development. However, in 2003, some of these Land Use Resolutions were withdrawn or revised such that they may offer less protection for the sage-grouse. Other counties harboring the grouse do not have Land Use Resolutions to include protections for the Gunnison sage-grouse.

Many actions have been taken on private land to conserve the sage-grouse (see Prelisting section below). The willingness of the landowners to carry out such actions offers great prospects for the conservation of the Gunnison sage-grouse on private land. However, unwillingness of some important landowners to take actions to conserve the sage-grouse in a couple of the populations illustrates a potential weakness of voluntary efforts. Furthermore, participation in State and Federal programs directed towards private land management is voluntary and dependent on program funding.

A Rangewide Conservation Plan has been initiated by State and Federal agencies to direct rangewide population goals, transplant/genetic needs, re-establishment of habitat linkages between populations and sub-populations, and to revise, modify or add conservation measures to local conservation plans. However, the Rangewide Conservation Plan is not yet completed and any beneficial results of actions implemented under the Plan will likely take at least a year from this writing to be realized. Similarly, a Statewide Candidate Conservation Agreement with Assurances is being developed for Colorado, but any beneficial effects also will take at least a year. Utah also has agreed to begin work on a Candidate Conservation Agreement with Assurances.

Actions carried out on Federal lands also are dependent on funding. Wildlife programs of the BLM and U.S. Forest Service (USFS) have received little funding in recent years and further habitat improvements are needed, especially on BLM land, which is the majority of the Federal land ownership.

E. Other Natural or Manmade Factors Affecting Its Continued Existence.

Other factors affecting the Gunnison sage-grouse's continued existence include fire suppression allowing encroachment into its habitat by pinyon (*Pinus edulis*), juniper (*Juniperus* spp.), and oakbrush (*Quercus gambelii*); fire suppression resulting in decadent stands of the sagebrush community; invasion of non-native plants; overgrazing by elk (*Cervus elaphus*) and deer (*Odocoileus hemionus*); drought; disturbance or death by off-highway-vehicles (OHVs); disturbance by construction projects; harassment from people and pets; continuous noise that impairs acoustical quality of leks; genetic depression; herbicides, pesticides, and pollution; and competition for habitat from other species. The small size of most of the populations may exacerbate impacts of relatively small threats included in the previous sentence.

Fire suppression has allowed pinyon and juniper trees to invade sagebrush habitat. If dense enough, the pinyon and juniper trees crowd out sagebrush and understory forbs and grasses. The trees also provide perches for raptors; consequently, sage-grouse avoid areas with pinyon-juniper invasions and suffer from higher predation rates if they occupy sagebrush habitats near them (Commons et al. 1999). Fire suppression may cause decadent stands of sagebrush that may provide less canopy cover and less forage. Oakbrush invasion as a result of fire suppression was identified as a threat in the Cerro Summit/Cimarron sub-population and may impact a portion of the Dove Creek, Pinon Mesa, and San Miguel Basin populations (CDOW, unpubl. lit. 2002). However, sage-grouse were observed, visually and through radio-telemetry, in oakbrush stands in Dove Creek and in 2002 during the summer in the Iron Springs and Beaver Mesa sub-populations of the San Miguel Basin population. The Iron Springs and Beaver Mesa birds using the oakbrush stands did not suffer higher rates of depredation. It was hypothesized that oakbrush may provide some benefit to foraging especially in drought years when the herbaceous understory may be less affected than in more open sagebrush stands (CDOW, unpubl. lit. 2002). Consequently, extensive oakbrush removal could be a threat to the sage-grouse. Any removal plans should consider leaving some stands of oakbrush based on expanse of the stands, invasion of oakbrush into historical sagebrush stands, and observations of oakbrush use by the area's sage-grouse.

Cheatgrass (*Bromus tectorum*) has invaded large areas of the Great Basin, which occurs in portions of Idaho, Nevada, Oregon, and Utah, causing severe degradation or elimination of the sagebrush communities. In the Great Basin, cheatgrass thrives after fires and creates an abnormally frequent fire cycle that does not allow sagebrush communities to reestablish themselves. Cheatgrass invasion was noted after a wildfire on Pinon Mesa, but is not currently a major threat in the Pinon Mesa population (Van Graham, CDOW, pers. comm. 2003; CDOW, unpubl. lit. 2004). Cheatgrass also occurs in late seral sagebrush in Dry Creek Basin within the San Miguel Basin population (CDOW, unpubl. lit. 2002) but is not currently considered to be a major threat (Jim Garner, CDOW, pers. comm. 2003). The Gunnison Basin also has cheatgrass and until 2003, infestations appeared to be primarily limited to roadsides, parking areas, several campgrounds, old sheep bedding grounds, one wildfire area in the western end of the Basin, a few grazing allotments, and some big game winter concentration areas (BLM, unpubl. lit. 2002; CDOW, unpubl. lit. 2002). There were 17 acres of cheatgrass mapped in the areas described above (BLM, unpubl. lit. 2002, CDOW, unpubl. lit. 2002, Gunnison Basin Weed Commission,

unpubl. lit. 2002). However, in 2003, increased rainfall appeared to increase the extent of cheatgrass invasion and 75 acres were sprayed. New infestations were found in the Dutch Gulch area and the Wiley Ridge and Camp Kettle Road burn areas. Furthermore, observations in 2003 indicate that cheatgrass is rapidly invading along the Doyleville cutoff road and along Highway 114 (BLM, unpubl. lit. 2004). Future research and monitoring planned by Colorado State University Agricultural Extension Office, Western State College, and possibly other entities, may reveal the extent of the cheatgrass invasion threat in the Gunnison Basin and elsewhere in Colorado. Though fire suppression may allow trees to invade sagebrush habitat types, use of fire as a tool to restore habitats must be used cautiously to avoid cheatgrass or other non-native weed invasions. Other non-native weeds in the Gunnison Basin also are a potential threat in some areas but will continue to be managed (Gunnison County Weed Commission, unpubl. lit. 2002).

Overgrazing by elk and deer may cause local degradation of habitats by removal of forage and residual hiding cover in the spring. Impacts by elk and deer are potentially greater in smaller sage-grouse population areas due to more restricted habitat availability in those populations. Disturbance by OHVs, construction projects, and harassment by people and pets can all lead to nest abandonment or even death of adults and chicks. Recreational impacts from hikers, mountain bikers, and OHVs has impacted some portions of the current range especially portions of the Gunnison Basin and Sims Mesa sub-population (CDOW, Habitat Section, unpubl. lit. 2002). Noise from activities that impair acoustical qualities of leks will result in fewer females being attracted to the leks and, thus, less reproduction.

The extreme drought of 2002 affected all sagebrush habitat in sage-grouse population areas in Colorado and Utah to differing degrees. Drought is probably a greater factor in smaller populations when sage-grouse have limited habitat that is supporting them. In the Gunnison Basin an estimated 1/3 of each big sagebrush plant was defoliated in 2002. In 2003, approximately 48 percent of all sagebrush plants were found to be defoliated (CDOW, unpubl. lit. 2004). Also, in 2003, approximately 17 percent of the sagebrush plants were found to be dead (CDOW, unpubl. lit. 2004). The drought that started in 2001 in the Gunnison Basin resulting in little herbaceous growth that year and possibly could have contributed to the 13 percent decline in males counted on leks in 2002 versus 2001. Monitored nests in 2002 had a 67 percent success rate in the Gunnison Basin, which is considered good, but some populations had 0 percent nest success and rangewide monitored nest success was only 24 percent (CDOW, unpubl. lit. 2002), which could have been caused by the drought. Effects of the 2002 drought appeared to be evident through lek counts in 2003 but further declines expected in 2004 did not occur. Snowpack and rainfall in 2003 was generally greater than in 2002 and actual effects to sagebrush were much more patchy than at first appeared (CDOW, unpubl. lit. 2004). Predominate Dry Creek Basin sagebrush species were hit hard by the drought with a 26 percent die-off of Wyoming big sagebrush (*A. tridentata* subsp. *wyomingensis*) and 50 percent die-off of black sagebrush (*A. nova*). Defoliation of remaining live sagebrush was 70 percent and 90 percent, respectively (CDOW, unpubl. lit. 2004). This may have contributed to very few males (and females) being observed on Dry Creek Basin leks in 2004 (CDOW, unpubl. data 2004). Droughts may be one natural way to reduce sagebrush canopy cover and allow for greater understory growth. Consequently, despite observed short-term effects to the population, longer

term effects of the drought may be beneficial in some or most of the range. However, for the Dove Creek population the continued decline in lek counts may have been exacerbated by the drought and, coupled with other threats, may have pushed that population to near extirpation. The Dove Creek area had been in a drought cycle for a few years prior to 2002, which, in combination with other threats, also may have contributed to the observed precipitous population decline.

The Gunnison sage-grouse appears to have little genetic diversity (Kahn et al. 1999). Human caused changes, especially over the last hundred years, have separated the sage-grouse into several populations resulting in little or no chance of genetic interchange between those populations. Small, isolated, populations may suffer from genetic depression or homogeneity causing physical problems and eventual extirpation of the population. In order for the little genetic diversity that does exist to be maintained, especially between the smaller populations of sage-grouse, it is likely that habitat linkages will need to be reestablished or transplanting individuals from other Gunnison sage-grouse populations will need to continue.

Large-scale herbicide spraying on native habitats will fragment and reduce cover and forage for the sage-grouse. Pesticide spraying can reduce or eliminate insects necessary for healthy chicks. Pollution from human-caused activities could impact the sage-grouse in local areas. However, none of these three threats were observed in 2003 at a scale that would impact the sage-grouse rangewide or even at a population or sub-population level (CDOW, unpubl. lit. 2004).

Competition for food could occur in riparian areas and wet meadow areas where preferred pheasant habitat overlaps with primary brood rearing habitat. Competition by pheasants is not likely a substantial threat to the Gunnison sage-grouse, particularly given that the CDOW has not recently released pheasants in these areas.

SUMMARY OF REASONS FOR ADDITION, REMOVAL OR LISTING PRIORITY CHANGE:

N/A Is the removal based on a Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) finding? If “Yes”, summarize the specific PECE evaluation criteria that were met in determining that the conservation effort is sufficiently certain to be implemented and effective so as to have contributed to the elimination or adequate reduction of one or more threats to the species identified through the section 4(a)(1) analysis.

FOR PETITIONED CANDIDATE SPECIES:

- a. Is listing warranted? **Yes**
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? **Yes**
- c. Is a proposal to list the species as threatened or endangered in preparation? **No**
- d. If the answer to c. above is no, provide an explanation of why the action is precluded.

We find that the immediate issuance of a proposed rule and timely promulgation of a final

rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, emergency listings, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the 12 months, see the discussion of “Progress on Revising the Lists,” in the current CNOR which can be viewed on our Internet website (<http://endangered.fws.gov/>).

LAND OWNERSHIP: Landowners include the BLM, USFS, National Park Service, State of Utah, State of Colorado, Ute Mountain Ute Tribe, and private landowners. Amongst all populations, the total acreage of land and the percentage of land privately or federally owned within each population is highly variable. Some populations, such as Dove Creek, have 85 percent private ownership and 15 percent State and Federal ownership whereas the Crawford Area and Poncha Pass population each only have 24 percent private ownership and 76 percent State and Federal ownership. Overall, approximately 47 percent of the current range of the Gunnison sage-grouse is privately owned, 46 percent is federally owned, 5 percent is State owned, and 2 percent is owned by Indian Tribes. Of the Federal landowners, the BLM manages approximately 41 percent of the current range, the USFS manages about 4 percent of the current range, and the National Park Service manages about 1 percent of the current range.

PRELISTING:

Working Groups consisting of Federal and State agencies, County representatives, livestock organizations, environmental organizations, and private landowners have completed six local Conservation Plans in Colorado and one for the Utah population. The Cerro Summit/Cimarron/Sims Mesa population does not have a local Conservation Plan written for it.

A Gunnison Sage-grouse Rangewide Conservation Plan has been initiated and will address areas not covered by the local plans. The intent of the Rangewide Conservation Plan is to address issues of rangewide importance not addressed by the local conservation plans and to provide more guidance on population and habitat targets and best management practices for the local Working Groups. These include actions to direct management in historical areas and linkages currently unoccupied by the sage-grouse, direct management in small occupied areas without plans, direct research to determine minimum viable population sizes and to decide upon or possibly develop the best population estimator, direct research and management for genetic diversity, direct management of sage-grouse viewing sites, and help determine priority areas, priority conservation actions, and funding rangewide and locally. The CDOW has the lead for the Rangewide Conservation Plan development. The CDOW has hired a writer/editor for the Rangewide Conservation Plan and has organized a Steering Committee that is writing the Plan. The Steering Committee also has established a Science Team and a Review Team for technical and biological input. Additional input will be made available to local Working Group members

or representatives and interested stakeholders. Furthermore, a Statewide Candidate Conservation Agreement with Assurances is being developed that will follow recommendations in the Rangewide Conservation Plan and that is intended to provide conservation on private or other non-Federal land.

The CDOW has provided funding for various actions on private, State and Federal lands, with about \$250,000 each year from 1996 to 2001 plus \$2.5 million for conservation easements in 2001. Starting in 2002, The Great Outdoors Colorado Trust Fund in partnership with the CDOW, private landowners, non-governmental organizations, and the Department of Interior, established a 3- to 5-year funding program, entitled the Colorado Species Conservation Partnership, that is projected to provide up to \$25 million to three landscapes Statewide, including sage-grouse conservation for conservation easements, management agreements, and stewardship incentives for private landowners. In 2003, the CDOW provided \$130,000 to habitat improvement projects, \$16,000 to Best Management Practices Guidelines development, \$7,000 for West Nile Virus research, up to \$6,000,000 for fee title acquisition, \$2,070,000 for a conservation easement, \$15,000 for a proposed Statewide Candidate Conservation Agreement with Assurances, \$58,000 for development of a Rangewide Conservation Plan, \$25,000 for genetic research, and \$80,000 for research in behavioral and genetic characterization of the Gunnison sage-grouse mating system. Furthermore, the CDOW is already scheduled to spend an additional \$40,000 on West Nile Virus research in 2004, \$275,000 for a conservation easement in the Crawford population, and \$73,000 on further behavioral and genetic characterization research in 2004 (CDOW, unpubl. lit. 2004). The BLM spent up to \$1,000,000 rangewide for Gunnison sage-grouse conservation efforts in 2003 (BLM, unpubl. lit. 2004).

A large effort, that will provide distribution, movement, habitat use, survival, nest success, and genetic information for the Rangewide Conservation Plan, was put forth by the CDOW and the State of Utah in 2002 through trapping, radio-tagging, and collection of blood samples for genetic analyses in all Gunnison sage-grouse populations in Colorado and Utah. There was much success with 143 sage-grouse captured in all populations. In 2001, the State of Utah also captured six Gunnison sage-grouse and fitted all of them with radio-tags for habitat use studies but no blood was drawn from them for genetic studies (Terry Messmer, Utah State University, pers. comm. 2003). In Colorado, 94 percent of the birds captured had radio-tags fitted on them and 98 percent had blood drawn from them. Tracking of existing radio-tagged birds continued in 2003.

Conservation actions carried out by the States, BLM, USFS, Natural Resource Conservation Service (NRCS), and other agencies from 1996 through 2003 include pinyon and juniper removal, brush beating to maintain leks and rejuvenate forbs and sagebrush, payments for non-use of farm or ranch lands, changes in grazing management, forbs and grass seeding, production of educational materials, habitat mapping, etc. Further details of conservation actions taken in each population follow.

Brush mowing on a State Wildlife Area occurred in 2000 in the Cerro Summit/Cimarron sub-population resulting in a new lek being established there in 2001. The State Wildlife Area has about 3,000 acres of sagebrush habitat. There is one conservation easement in the Cerro

Summit/Cimarron sub-population on 1,200 acres that should protect habitat for the sage-grouse (CDOW, unpubl. lit. 2002) and another 680-acre easement was solidified in this sub-population in 2003, which protects the Coal Hill lek (CDOW, unpubl. lit. 2004). There are two other landowners interested in conservation easements, one with 300 acres and one with 3,200 acres. The Rocky Mountain Elk Foundation may help with the purchase of an easement on the 3,200-acre parcel, which is in the Cerro Summit area. The CDOW is not planning on pursuing an easement with the landowner with 300 acres until sage-grouse use can be confirmed on his property. In the Sims Mesa sub-population, one landowner has received preliminary approval for a Farmland Protection easement from the NRCS. Discussions with other landowners have occurred for protection of their land with mild interest for fee title purchases. In 2003, the CDOW completed purchase of two grazing permits in the Sims Mesa area. The combined 10,000-acre grazing allotments encompass 2,300 acres of currently occupied habitat (CDOW, unpubl. lit. 2004). Fencing of about 8 miles around Cimarron State Wildlife Area also occurred which should help prevent trespass cattle (CDOW, unpubl. lit. 2004).

The Crawford Area population has had numerous management actions conducted on it in the core of the range. Residual nesting cover on at least 50 percent of the nesting area was left through June of 1998 and 1999. Stock water lines, ponds, and fences also were installed to better control grazing and save residual cover for nesting and hiding (FWS, unpubl. lit. 2002). Treatments include 1,220 acres of brush beating from 1997-2000, 1,965 acres of prescribed burning from 1997-1999, 600 acres of wildfire rehabilitation in 1999, rollerchopping brush on 1,050 acres from 1998-2001, pinyon and juniper tree removal on 700 acres from 1997-2000, interseeding 20 acres with grasses and forbs in 1999, and creation of four wet seep areas from 1999-2001. In 2003, one additional water project and one 280-acre prescribed burn were carried out (CDOW, unpubl. lit. 2004). The CDOW completed securing a 560-acre conservation easement on the last large tract of private land within the Crawford Area population. The land is within 1.5 miles of all of the leks in this population and, therefore, is a key piece of land for the sage-grouse (CDOW, unpubl. lit. 2004).

In 1998, the FWS entered into a cooperative agreement with the CDOW which provided \$60,000 for sage-grouse conservation in the Dove Creek population (FWS, unpubl. lit. 1998). The conservation actions were carried out on private land and included reseeding 2,000 acres of land, payments for no grazing or modified grazing, construction of fences to manage grazing, and payment for a 10-year agreement not to develop housing on 138 acres of land. The Dove Creek area had two landowners sign up for 20-year easements on 160 and 516 acres, respectively, in 2001 (CDOW, unpubl. lit. 2002). In 2002, there was another landowner who signed a 20-year, 120-acre conservation easement. A 240-acre tract in the Dove Creek population was purchased by the La Plata Open Space Conservancy and is scheduled for 120 acres of habitat improvements in future years. The Rocky Mountain Elk Foundation is currently in negotiation for the purchase of 1,320 acres containing sage-grouse habitat, from which the CDOW would subsequently acquire a conservation easement. In 2002, a management agreement was secured on 200 acres that would provide for sagebrush habitat improvement. Another 120-acre, 20-year term conservation easement was completed in 2003 (CDOW, unpubl. lit. 2004). The NRCS also designated a significant amount of land (138,000 acres) in the Conservation Reserve Program (CRP) as Conservation Priority Areas around the Dove Creek population in 2000. The NRCS, in

cooperation with the CDOW seeded newly enrolled CRP land around Dove Creek with a sagebrush mixture in 2000 but due to drought the sagebrush failed to propagate. These areas were replanted in 2001. Additionally, 400 acres of oakbrush were mowed with a hydroax in spring 2000 (CDOW, Habitat Section, unpubl. lit. 2002). A dixie harrow treatment with understory seeding occurred on 320 acres of sagebrush in 2002 (CDOW, unpubl. lit. 2002).

The FWS and BLM helped fund a fencing project that conserved about 200 acres of sage-grouse habitat in the Gunnison Basin through the Partners for Fish and Wildlife Program in 1998. Numerous small habitat treatments intended to improve habitat for sage-grouse have occurred on BLM land in the Gunnison Basin including brush beating to maintain leks, experimental chemical treatments to try to achieve age class diversity of sagebrush, brush mowing and interseeding experiments to refine methodology, and riparian stabilization projects. Through 2002, many conservation actions were accomplished in Long Gulch by BLM, CDOW, and NRCS personnel. These include the first year of mapping vegetation, 300 acres of brush mowing and seeding, setting up a 1-acre experimental mowing and seeding enclosure, an NRCS 70-acre mowing and 185-acre chemical treatment on a 3,000-acre ranch that borders Long Gulch, wetland and riparian restoration through willow sprig planting on the Dutch Gulch State Wildlife Area in Long Gulch, and the start of a fencing project around Dutch Gulch to better manage grazing and provide wetland protection. In other parts of the Gunnison Basin 30 acres of sagebrush was mowed, a Watchable Wildlife site was constructed, roads were closed on BLM land to protect leks and other roads were signed to help prevent vehicular damage to habitat, BLM built two new riparian enclosures on Tomichi Dome and Leaps Gulch and maintained four others, and BLM reseeded 320 acres after the Wiley Gulch fire near Antelope Creek with sagebrush. In 2003, eight different habitat management projects totaling at least 1,400 acres were completed. These eight projects included prescribed burning, brush mowing, riparian restoration and fencing, and aeration and seeding with native plants (CDOW, unpubl. lit. 2004).

The Gunnison Field Office of BLM has incorporated Gunnison sage-grouse conservation objectives in many of their grazing permits and allotments consistent with their Resource Management Plan. All allotments within sage-grouse habitat in 2002 had non-use, partial use, adjustment of grazing seasons, reduced AUMs or a combination of the last three management actions, for the 2002 grazing season due to the 2002 drought. As of January 2003, 24 percent (15 of 62) of BLM grazing allotments in sage-grouse range in the Gunnison Basin had sage-grouse habitat objectives incorporated into them (BLM, unpubl. lit. 2003). The 15 grazing allotments with sage-grouse habitat objectives covered 45 percent of the overall sage-grouse habitat in the Gunnison Basin (BLM, unpubl. lit. 2003). In 2003, the number of allotments was reduced to 60 but the number of allotments with Gunnison sage-grouse habitat objectives incorporated into them increased to 18 (30 percent). These 18 allotments covered 50 percent of the overall sage-grouse habitat in the Gunnison Basin (BLM, unpubl. lit. 2004). However, sage-grouse habitat objectives were not being met in all the allotments. Furthermore, the USFS adjusted grazing management on 14 of their 20 allotments within sage-grouse habitat through complete or partial non-use and AUM reductions in 2002. The USFS also constructed a 10-acre riparian enclosure to benefit sage-grouse, conducted native species seeding over 20 acres on two different allotments, and closed 0.8 mile of road in sage-grouse habitat (USFS, unpubl. lit. 2002). Cheatgrass was sprayed over 30 acres throughout the Gunnison Basin and 47 acres of other

noxious weeds were sprayed by the BLM in 2002 (BLM, unpubl. lit., 2002).

In 2001, as mitigation for a 320-acre land transfer from BLM to Gunnison County for a County Landfill, Gunnison County established a \$1.00 surcharge on every cubic yard of fill for the next 15 years. This is expected to generate \$54,000 annually for habitat enhancement projects. Gunnison County is cooperating with the FWS on development of a Candidate Conservation Agreement with Assurances for impacts of the County Landfill. The County also has provided \$284,000 of funding through their Land Preservation Board for conservation easements along Tomichi Creek in past years and has committed to contribute \$390,000 for an additional easement along Ohio Creek.

Acquisition of 320 acres of private property in the Gunnison Basin by the State occurred in 1999 and resulted in the area being designated as Dutch Gulch State Wildlife Area. The BLM purchased 1,734 acres of land in the Ohio Creek drainage important for sage-grouse in 2002. One 872-acre parcel of land was placed in a conservation easement in that drainage for a total of 2,606 acres conserved through 2002 (CDOW, unpubl. lit. 2002). In the Tomichi Creek drainage there was an 811-acre conservation easement put in place in 2002, adding to previous easements for a total of 7,129 acres. There also was a 560-acre conservation easement established in the Lake Fork of the Gunnison River drainage bringing the total land in easements in that drainage to 1,403 acres in three parcels. The potential land conserved if those easements are entered total 2,964 acres on five parcels in the Tomichi Creek drainage, 2,120 acres on one parcel in the Ohio Creek drainage, and 3,771 acres on three parcels in the Lake Fork drainage (CDOW, unpubl. lit. 2002). In 2003, there was a fee title acquisition of 458 acres and three perpetual conservation easements secured that included parcels of 4,700 acres, 300 acres, and 456 acres (CDOW, unpubl. lit. 2004). In 2001 and early 2002, a total of 4.17 percent of the private land in the Gunnison Basin was protected by conservation easements that benefitted the Gunnison sage-grouse (CDOW, Habitat Section, unpubl. lit. 2002). Signed conservation easements in the Gunnison Basin covered 18.08 percent of lek sites, 8.26 percent of nesting/early brood rearing areas, 8.44 percent of brood rearing areas, and 11.61 percent of severe winter range within the range of the Gunnison Basin population (CDOW, Habitat Section, unpubl. lit. 2002). Percentages of habitat types covered by conservation easements since 2002 and through the time of this writing are not currently available in Gunnison Basin or in other populations. In 1999, 17 to 23 acres of sagebrush around two historic lek sites in the Pinon Mesa population were brush beat to restore the leks. Additionally in 1999, 200 acres of sagebrush were mowed to enhance age-class diversity, reseeding and pinyon-juniper snag removal was conducted on 3,671 acres after the Fish Park wildfire, cutting of 139 acres of scattered pinyon-juniper was performed, and 818 acres of pinyon-juniper was roller-chopped in 2001 (CDOW, unpubl. lit. 2002). In 2002, there were 2,583 acres of pinyon and juniper trees rollerchopped on BLM and private land, cutting of scattered pinyon and juniper over a 1,640-acre private parcel with an easement, 408 acres of trees cut as a fuel break on another ranch, and 2,433 acres of trees and sagebrush were burned in a wildfire on the Dierich Ranch. It is estimated that the Dierich Ranch wildfire will produce about 450 acres of suitable sagebrush habitat adjacent to currently used range (Van Graham, CDOW, pers. comm. 2003). In 2003, there were four habitat improvement projects in the Pinon Mesa population totaling at least 925 acres. The projects included pinyon/juniper removal, a post-fire chaining and seeding project on the Dierich Ranch fire area,

a seeding project, and a fencing project of unknown length (CDOW, unpubl. lit. 2004). Furthermore, there are 7,171 acres of land in conservation easements within sage-grouse range around the Pinon Mesa population and the CDOW and Mesa Land Trust are negotiating with a landowner to place another 720 acres in a conservation easement. The conservation easements combined with public land allows 45 percent of the area to have long-term protection (CDOW, unpubl. lit. 2002).

The Poncha Pass sage-grouse population area had extensive sagebrush manipulations in the 1960s consisting primarily of plowing or chaining sagebrush and seeding non-native grasses. These manipulations primarily took place west of Highway 285 and resulted in hundreds of acres of sagebrush with the same age, structure, and canopy cover. Despite this, vegetation studies conducted in 2000 throughout the Poncha Pass population area indicate that the sagebrush habitat meets or exceeds national standards recommended for productive sage-grouse habitat (CDOW, unpubl. lit. 2002). There were no habitat treatments in 2002 and none are planned, but future distribution information may reveal lands used by the sage-grouse that are in need of improvements. In 2002, several families purchased a 575-acre parcel to preserve the parcel for the sage-grouse. Rather than a subdivision, the land will be maintained as rangeland with no fences. There is one 475-acre conservation easement that will likely proceed pending funding through the CSCP. Another parcel of land with potential for a 600-acre easement is tied up in litigation in a related land deal but once that litigation is completed it is likely that the easement will be completed (CDOW, unpubl. lit. 2002).

In San Juan County, Utah, 33,000 acres were enrolled in CRP under a Conservation Priority Area designation in 2000. All of the acreage in Utah, plus an additional 4,000 acres of CRP land not in the Conservation Priority Area designation, were seeded with a mixture of plants, including sagebrush, intended to benefit the sage-grouse. Reseeding may be necessary as the drought of 2002 did not facilitate seed germination. Some of the CRP fields were grazed in 2002 under a drought emergency, but all of the fields grazed had exclosures built in them to monitor vegetation impacts (San Juan County Working Group, unpubl. lit. 2003). One landowner in the San Juan County, Utah, population put 2,200 acres into a conservation easement in 2001. The land under the easement has had vegetative plantings, a water guzzler, and sprinkler system installed to provide wet meadow habitat (San Juan County Working Group, unpubl. lit. 2003). Two other conservation easements are being pursued around two of the lek sites and a third easement around a newly discovered lek may be pursued (San Juan County Working Group, unpubl. lit. 2003). There also have been conservation actions implemented by the UDWR such as vegetative planting in cooperation with private landowners (FWS, unpubl. lit. 2001). According to LandSat imagery and some ground truthing, the breeding and brood rearing complexes meet or exceed vegetation standards in the San Juan County, Utah, Conservation Plan for acreage, cover types, and percentage of cover.

The CDOW completed 350 acres of a proposed 600-acre mechanical sagebrush improvement project in the Dry Creek Basin sub-population of the San Miguel population in 2002 (CDOW, unpubl. lit. 2002). Mowing will create 1-5 acre patches of young age-class sagebrush stands to improve diversity and the areas will be reseeded with native vegetation. Additionally, invading pinyon/juniper will be removed. Efforts were suspended in 2003 due to the ongoing drought. In

2001, 40 acres of sagebrush were treated on CDOW land with brush mowing and seeding. Pinyon-juniper removal also has occurred in portions of the San Miguel population. In 2003 in Dry Creek Basin, a 200-acre reseeding took place in a previously burned area and 20 acres of sagebrush and herbaceous plants were seeded. An unknown amount of pinyon and juniper trees were removed (CDOW, unpubl. lit. 2004). A 2,200-acre parcel of land is being pursued for purchase by BLM in Dry Creek Basin. Additionally, San Miguel Open Space awarded \$245,000 for purchase of development rights on 240 acres on Hamilton Mesa and the agreement includes the option of an additional 950 acres in the future. Conservation easement discussions are ongoing with a group of people that own 918 acres of land in the Gurley Reservoir sub-population. A landowner in the Beaver Mesa sub-population has expressed interest in a conservation easement on his 4,400-acre tract and another landowner in the Iron Springs sub-population has expressed interest in an easement on his 385-acre tract. In 2000, the CDOW purchased 1,350 acres from a private landowner in the Miramonte Reservoir sub-population. Habitat improvements have started on this tract, consisting of livestock grazing removal, fencing, moving and reseeding a county road that passed through it, enhancement of water sources, and numerous erosion control efforts. In 2002, San Miguel Open Space awarded \$300,000 for the purchase of 290 acres on a parcel of land whose owner previously sold 320 acres to San Miguel Open Space in the Miramonte Reservoir sub-population. San Miguel Open Space has an option for purchase of another 160 acres from the same landowner (CDOW, unpubl. lit. 2002). Three perpetual easements totaling about 720 acres were secured in 2003 in the San Miguel Basin population. These easements were for a 230-acre property, a 336-acre property, and a 150-acre property (CDOW, unpubl. lit. 2004).

Pre-listing conservation actions continued in 2003 with 2,644+ acres of habitat treatments in all Gunnison sage-grouse population areas implemented by the CDOW, BLM, or NRCS. Furthermore, 7,260 acres of conservation easements or fee title acquisitions were obtained or nearly completed in Colorado in 2003 (CDOW, unpubl. lit. 2004).

DESCRIPTION OF MONITORING: Information on the status, threats, and pre-listing conservation actions conducted for the Gunnison sage-grouse since the last status review (approximating calendar year 2003) was solicited from State, Federal, and Tribal entities as well as other rangewide and local Working Group parties and interested publics through a January 12, 2004 letter. This letter served as a reminder of acceptance of public comments anytime throughout the year, as stated in Candidate Notices of Review. We included an outline of requested information with the January 2004 letter that helped us to assess the status of the sage-grouse. The CDOW and BLM provided the bulk of the information in response to our request with the NRCS, Gunnison County, an environmental organization, and a member of one of the local Working Groups providing additional comments. Throughout 2003 and up through the compiling of this form, information also was obtained through frequent phone or in-person meeting contacts with the CDOW, BLM, other agencies, and occasionally other members of the public. Literature and data were obtained through the information request, telephone or meeting contacts, electronic-mail messages, and internal and external mailings. Population counts, habitat information, and a great amount of information on threats to the sage-grouse were obtained through these processes and were an appropriate and complete means of information gathering.

REFERENCES:

- American Ornithologists' Union. 2000. Forty-second supplement to the American Ornithologists' Union *Check-list of North American Birds*. Auk 117:847-858.
- Borell, A.E. 1939. Telephone wires fatal to sage-grouse. Condor 41:85-86.
- Braun, C.E. 1995. Distribution and status of sage-grouse in Colorado. Prairie Naturalist 27:1-9.
- Braun, C.E., and J.R. Young. 1995. A new species of sage-grouse from Colorado. Proceedings of the Joint Meeting of The Wilson Ornithological Society and the Virginia Society of ornithology. Williamsburg, Virginia. Abstract. #23.
- Commons, M.L., R.K. Baydack, and C.E. Braun. 1999. Sage-grouse response to pinyon-juniper management. USDA Forest Service Proceedings RMRS-P-9. 1999:238-239.
- Dunn, P.O., and C.E. Braun. 1986. Late summer-spring movements of juvenile sage-grouse. Wilson Bulletin 98:83-92.
- Hupp, J.W., and C.E. Braun. 1989. Topographic distribution of sage-grouse foraging in winter. J. Wildl. Manage. 53:823-829.
- Hupp, J.W., and C.E. Braun. 1991. Geographic variation among sage-grouse in Colorado. Wilson Bulletin 103:255-261.

- Kahn, N.W., C.E. Braun, J. R. Young, S. Wood, D. R. Mata, and T.W. Quinn. 1999. Molecular analysis of genetic variation among large- and small-bodied sage-grouse using mitochondrial control-region sequences. *Auk* 116:819-824.
- Klebenow, D.A. 1969. Sage-grouse nesting and brood habitat in Idaho. *J. Wildl. Manage.* 33:649-662.
- Oyler-McCance, S.J. 1999. Genetic and habitat factors underlying conservation strategies for Gunnison sage-grouse. Abstract of PhD Dissertation. Colorado State University, Fort Collins. 162 pp.
- Quinn, T.W., N.W. Kahn, J.R. Young, N.G. Benedict, S. Wood, D. Mata, and C.E. Braun. 1997. Probing the evolutionary history of sage-grouse *Centrocercus urophasianus* populations using mitochondrial DNA sequence. *Wildlife Biology* 3:291.
- Schroeder, M.A., C.L. Aldridge, A.D. Apa, J.R. Bohne, C.E. Braun, S.D. Bunnell, J.W. Connelly, P.A. Deibert, S.C. Gardner, M.A. Hillard, G.D. Kobriger, S.M. McAdam, C.W. McCarthy, J.J. McCarthy, D.L. Mitchell, E.V. Rickerson, and S.J. Stiver. 2004. Distribution of sage-grouse in North America. *The Condor* 106:363-376.
- Schroeder, M.A., J.R. Young, and C.E. Braun. 1999. Sage Grouse (*Centrocercus urophasianus*). In *The birds of North America*, No. 425 (A. Poole and F. Gill, editors). The Birds of North America, Inc., Philadelphia, Pennsylvania, USA.
- State of Colorado, Division of Local Affairs, Demography Section. 2004. Population projections. Available online at <http://dola.colorado.gov/demog/ccinput2.cfm> (accessed July 9, 2004).
- U.S. Bureau of Land Management. 1999. State of Colorado oil and gas potential. Available online at <http://www.co.blm.gov/metadata/ogpbrw.htm> (accessed 23 February 2004).
- Wallestad, R.O. 1971. Summer movements and habitat use by sage-grouse broods in central Montana. *J. Wildl. Manage.* 35:129-136.
- Young, J.R. 1994. The influence of sexual selection on phenotypic and genetic divergence among sage grouse populations. Dissertation, Purdue University, West Lafayette, Indiana, USA.
- Young, J.R., J.W. Hupp, J.W. Bradbury, and C.E. Braun. 1994. Phenotypic divergence of secondary sexual traits among sage-grouse, *Centrocercus urophasianus*, populations. *Animal Behaviour* 47: 1353-1362.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2*
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

YES Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Rationale for listing priority number:

Despite development of the local Conservation Plans and numerous actions implemented under those Plans to date, all of the threats to the Gunnison sage-grouse, under the five listing factors, are still occurring, or have potential to occur. The Rangewide Conservation Plan is needed to better direct and prioritize large-scale conservation efforts but it is incomplete. The BLM needs to conduct more habitat improvements for vitality of vegetation in the herbaceous understory and for the sagebrush overstory, especially in the Gunnison Basin, since about half of the grazing allotments are not meeting sage-grouse habitat objectives. In addition, the reduction by at least 75 percent of the Gunnison sage-grouse's historic range, existing or potential development and other habitat threats to the Gunnison Basin population, and uncertain continued existence of the small, disjunct, populations outside of the Gunnison Basin population, leads us to believe that listing the Gunnison sage-grouse is warranted.

With population numbers already low, continuation, addition, or increase of threats as described above, is of concern. Numerous conservation actions have occurred and funding and plans for additional conservation actions are in place. Unfortunately, beneficial effects of habitat treatments to sage-grouse population numbers may take one or more years for herbaceous plant treatments (likely a longer period under drought conditions) and 10 or more years for sagebrush treatments. Based on information available to date, including virtually no increase in rangewide populations in 2004 following the significant population declines in 2003, threats to the sage-grouse have not been reduced or eliminated at all or to any significant extent.

Magnitude: High

The magnitude of the threats is high, particularly due to rangewide historic and ongoing habitat loss from housing and natural gas development and associated infrastructure, agriculture, and grazing practices. Poor condition of the remaining habitat from indirect effects of these actions in combination with impacts and slow recovery of habitats due to drought, pinyon-juniper invasion, and, to a lesser extent, noxious weed invasion also reveal that the magnitude of threats is high. Existing and potentially significant future impacts of natural gas development in the Sims Mesa sub-population of the Cerro Summit/Cimarron/Sims Mesa population, the Crawford population, Dove Creek population, San Juan County, Utah, population, and San Miguel Basin population poses a threat to at least half of the current range of the sage-grouse. The potential rangewide threat from West Nile Virus also causes the magnitude of threats to be high. Effects of housing development or other structural development are permanent or long-term. Natural gas development effects can be reduced during production and further reduced after the life of a well or well field but disturbance effects and habitat fragmentation and degradation effects may last for 20 to 100 years or more. Based on preliminary modeling results, the Gunnison Basin population is highly likely to persist for at least the next 50 years if housing and associated development and disturbance do not result in overall habitat loss, and if other threats such as West Nile Virus and poor habitat quality are not significant and/or persistent. However, individual and cumulative impacts of these threats, along with numerous lower-magnitude threats, on these small, highly fragmented populations, lead to concern for the future of the species.

Imminence: Imminent

Despite numerous and well-funded pre-listing conservation actions, based upon information about ongoing threats and the likelihood of new or expanded threats in the near future, as described above, the FWS believes the majority of the threats are imminent. Consequently, in combination with the high magnitude of threats, the listing priority should remain a 2.

Is Emergency Listing Warranted?

The FWS does not believe that emergency listing is warranted at this time based on the large population remaining in the Gunnison Basin and continued pre-listing conservation actions by the CDOW, BLM, NRCS, and other organizations (as described in the Prelisting section) including securing or near completion of conservation easements, fee title acquisitions, habitat treatments, continuation of efforts for development of the Rangewide Conservation Plan and an umbrella Candidate Conservation Agreement with Assurances, and funding of these efforts. West Nile Virus impacts are unknown but if significant impacts are discovered in 2004 then emergency listing will be reconsidered.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all 12-month petition findings, additions of species to the candidate list, removal of candidate species, and listing priority changes.

Approve: Ralph Morgenweck
Regional Director, Fish and Wildlife Service

August 30, 2004
Date

Concur: Matt Hogan, Acting
Director, Fish and Wildlife Service

5/2/05
Date

Do not concur: _____
Director, Fish and Wildlife Service

Date

Director's Remarks _____

Date of annual review: July 1, 2004

Conducted by: Terry Ireland

Comments: _____

